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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,365	04/16/2004	Chang Yeon Kim	8733.1032.00-US	8096
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MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER MA, CALVIN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,365	Applicant(s) KIM ET AL.	
	Examiner CALVIN C. MA	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2, 4-7, 9-11, 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7, 9-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 9-11, 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US Patent 6,369,786).

As to claim 1, Suzuki discloses an electro-luminescence display (i.e. organic EL display) (see Fig. 4, Col. 4, Lines 27-33) device, comprising:

gate lines (L1, L2 ... Ly);

data lines crossing the gate lines (i.e. the data lines S1, S2, ...Sx crosses the gate line L to form the matrix) (see Fig. 4, Col. 4, Lines 5- 20);

pixel cells (i.e. current driven display element) at crossing of the gate lines and the data lines (see Fig. 4, Col. 4, Lines 27-29);

a gate driver (1) that sequentially applies a gate signal to the gate lines during one horizontal period (i.e. the gate driver 1 applies the switching to the pixel with the action of scanning drive) (see Fig. 4, Col. 3, Lines 52-65); and

a plurality of data driving circuits (i.e. each of the current and voltage supply CS and C components in 2 and 3) that apply voltage signals to the pixel cells along a data line during a first time (T1) of within the horizontal period and

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apply current signals to the pixel cells during a second time (T2) within the horizontal period after the first time of the horizontal period (i.e. the first time is for Precharging voltages T1 and the second period is for current driving period T2) (see Fig. 5-6, Col. 5, Lines 27-40),

wherein each of the plurality of data driving circuit includes a voltage driver (5) that applies voltage signals corresponding to image data to the data lines to pre-charge the voltage signals onto storage capacitors in the pixel cells, and a current driver (CS1) that allows the current signals corresponding to the image data to flow into the pixel cells (see Fig. 5-6, Col. 5, Lines 1-40).

As to claim 9, Suzuki teaches a method of driving an electro-luminescence display device (i.e. organic EL display) (see Fig. 4, Col. 4, Lines 27-33), comprising:

applying a gate signal to pixel cells (i.e. the current display elements) along a specific horizontal line during a horizontal period (i.e. the gate driver 1 applies the switching to the pixel with the action of scanning drive during present horizontal period to activate the matrix display) (see Fig. 4, Col. 3, Lines 52-65);

applying a voltage value corresponding to image data to the data lines during a first time within the horizontal period to pre-charge the voltage value onto a storage capacitor (i.e. the intersection of the data and gate line serve as a storage capacitor to be precharged by the precharge circuit 3) of the pixel cells (i.e. during the first time T1 the Precharging voltages 5 is applied and the second period is for current driving period T2) (see Fig. 5-6, Col. 5, Lines 1-40),

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, and

applying a current value corresponding to the image data to the data lined during a second time within the horizontal period after the first time to display an image corresponding to the image data (i.e. the current drive is applied after the precharge period) (see Fig. 5-6, Col. 5, Lines 1-40).

As to claim 13, Suzuki teaches a method of driving an electro-luminescence display device, comprising:

applying a gate signal from a gate driver during each horizontal period to select pixel cells along specific horizontal period to pre-charge the voltage value onto a storage capacitor of the pixel cells (i.e. during the first time T1 the Precharging voltages 5 is applied and the second period is for current driving period T1 to T2) (see Fig. 5-6, Col. 5, Lines 1-40); and

applying a current value corresponding to the image data to the data lines during a second time within the horizontal period after the first time (i.e. the current drive is applied after the precharge period) (see Fig. 5-6, Col. 5, Lines 1-40).

As to claim 2, Suzuki teaches the electro-luminescence display device according to claim 1, wherein the first time is shorter than the second time (i.e. the timing diagram in Fig. 6 clearly shows that precharge period T1 is shorter than the voltage applying period) (see Fig. 6, Col. 5, Lines 1-40).

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As to claim 10, Suzuki teaches the method according to claim 9, wherein applying a voltage value and applying a current value are repeated every horizontal period (i.e. the driving of the EL matrix display shown in figure is shown to be for each horizontal scanning period) (see Fig. 6, Col. 5, Lines 1-40).

As to claim 11, Suzuki teaches the method according to claim 9, wherein the first time is less than the second time (i.e. the timing diagram in Fig. 6 clearly shows that precharge period T1 is shorter than the voltage applying period) (see Fig. 6, Col. 5, Lines 1-40).

As to claim 15, Suzuki teaches the method according to claim 13, wherein the first time is less than the second time (i.e. the timing diagram in Fig. 6 clearly shows that precharge period T1 is shorter than the voltage applying period) (see Fig. 6, Col. 5, Lines 1-40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Ishizuka et al. (US Patent: 6,756,951)

As to claim 5, Suzuki teaches the electro-luminescence display device according to claim 1, wherein the voltage driver includes:

a plurality of voltage driving circuit (i.e. Voltage source 5) corresponding to each data line that generate a voltage signal corresponding to the image data (i.e. the Precharging voltage is according to the data that is to be applied) (see Fig. 4, 6, Col. 4, Line 40- Col. 5, Line 40); and

a plurality of first switches (i.e. switches C1... Cy) between each of the voltage driving and each of the data lines, wherein the first switches are turned on by a control signal (i.e. by definition the switch are controlled by a signal that control the input of the Precharging voltage) (see Fig. 4, 6, Col. 4, Line 40- Col. 5, Line 40).

However, Suzuki does not explicitly teach a block for each of the individual data voltage driving circuit. Ishizuka teaches voltage driving control block (201, 202, and 203) (see Fig. 8, Col. 8, Lines 8-12).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have using the modular control design of Ishizuka in the overall display design of Suzuki, since more data driving circuit make the display panel uniform (See Ishizuka Col.3, Lines 1-4).

As to claim 6, Suzuki teaches the electro-luminescence display device according to claim 5, wherein said current driver includes:

a plurality of current driving circuit (CS1...CSx) corresponding to each data lines that drive the current signal in response to the image data, said current driving circuit having i subgroups; and a plurality of second switches (S1...Sx) between each of the current driving circuit and each of the data lines and wherein the second switches are turned on by a control signal (i.e. since the current driving circuit feed each data line according to the control signal controlling S based on the image data they form display components dedicated for each line) (see Fig. 4, 6, Col. 4, Line 40- Col. 5, Line 40).

As to claim 7, Suzuki teaches the electro-luminescence display device according to claim 6, wherein the control signal remains at a first level during the first time (T1) and remaining at second level during the second time (T2) (see Fig. 6, Col. 5, Lines 1-40).

5. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Ha et al. (US Patent: 7,030,842)

As to claim 4, Ha teaches a gamma voltage driver (46) that applies a plurality of gamma voltage levels to the voltage driver (44) so as to generate the voltage signal (see Ha Col. 8, Lines 25-33).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have provided a gamma voltage driver that applies a plurality of gamma voltage levels to the voltage driver so as to generate

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the voltage signal as taught by Ha to light emitting display system of Suzuki because the gamma voltage generators applying different gamma voltage would provide the pictures with substantially uniform brightness (see Ha, Col. 7, Lines 1-3).

As to claim 14, Ha teaches applying the voltage value to the pixel cells (48) includes selecting one of a plurality of gamma voltage (i.e. Gamma one) (see Col. 3, Lines 48-50) values according to the image data to apply to the pixel cells (see Col. 8, Lines 35-38). Therefore, the combination of Ha and Suzuki teaches the limitation.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 2, 9-11 and 13-15 have been considered but are moot in view of the new ground(s) of rejection.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma
June 6, 2008

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629